(**Specifier Note**: The purpose of this guide specification is to assist the Specifier in correctly specifying AeroLift motorized projector lifts and their installation. The Specifier needs to edit these guide specifications to fit the needs of each specific project. References have been made within the text of the specification to MasterFormat section numbers and titles. The Specifier needs to coordinate these numbers and titles with sections included for the specific project.

Throughout the guide specification, there are Specifier Notes to assist in the editing of the file. Desired options for motors, enclosures and controls need to be noted. Brackets have been used to indicate when a selection is required. Unless noted otherwise, the first option is the standard feature. Contact a Draper, Inc. representative for further assistance with appropriate product selections.

Projector equipment should be chosen during the planning stages of a project to ensure desired mounting and functions can be achieved. An AV consultant or expert should be involved whenever possible. Coordinate projector specifications with motorized projector lift capabilities.)

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**SECTION 11 52 23**

**AUDIO-VISUAL EQUIPMENT SUPPORTS**

Draper, Inc. AeroLift Motorized Projector Lifts

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes: Motorized projector lifts.
			2. ACTION SUBMITTALS
				1. Refer to Section [**01 33 00 Submittal Procedures**] [**Insert section number and title**].
				2. Product Data: For each type of lift, including manufacturer recommended installation procedures.
				3. Shop Drawings: Include dimensions, method of attachment, structural support, [**bracing,**] and electrical wiring.
				4. Samples: Provide finish samples.
			3. CLOSEOUT SUBMITTALS
				1. Refer to Section [**01 78 00 Closeout Submittals**] [**Insert section number and title**].
				2. Maintenance data.
			4. QUALITY ASSURANCE
				1. Motors for projector lifts shall be certified for use in the United States and Canada by Underwriters Laboratory (UL), Inc. and shall bear UL label. AeroLift 35, AeroLift 100, and AeroLift 150 are US UL Listed to UL 2442 and Canada UL Listed to CSA C22.2 No. 60065-03.
			5. DELIVERY, STORAGE AND HANDLING
				1. Refer to Section [**01 60 00 Product Requirements**] [**Insert section number and title**].
				2. Deliver motorized projector lifts in manufacturer’s original, unopened, undamaged containers with identification labels intact.

(**Specifier Note**: Draper, Inc. does not warrant against freight damage, concealed or otherwise. RETAIN inspection and storage paragraphs below for all projects.)

* + - * 1. Inspect motorized projector lifts for freight damage, concealed or otherwise, upon delivery to project site. Report damage to freight carrier immediately for replacement of motorized projector lifts.
				2. Store motorized projector lifts in resealed manufacturer’s original containers.
			1. WARRANTY
				1. Manufacturer’s 5 year limited warranty.
1. PRODUCTS

(**Specifier Note**: Product information is proprietary to Draper, Inc. If additional products are required for competitive procurement, contact Draper, Inc. for assistance in listing competitive products that may be available.)

* + - 1. MANUFACTURER
				1. Draper, Inc.; 411 South Pearl Street; Spiceland, IN 47385-0425; Phone 765.987.7999; website [www.draperinc.com](http://www.draperinc.com)

Subject to compliance with requirements, manufacturers of products of equivalent design may be acceptable if approved in accordance with [**Section 01 25 00 Substitution Procedures**] [**Insert section number and title**].

* + - * 1. Source Limitations: Obtain motorized projector lifts from single manufacturer as a complete unit including necessary mounting hardware and accessories.
			1. PERFORMANCE REQUIREMENTS

(**Specifier Note**: Suspended projector lifts may require bracing to resist seismic loads depending on weight, project location, and installation details. Suspension rods, bracing, and other support components are not provided by Draper and will need to be designed for specific applications, detailed on drawings, and specified in other sections. DELETE seismic bracing paragraph below if not project specific.)

* + - * 1. Seismic Bracing: Motorized projector lift suspension components and method of installation shall comply with requirements for Seismic Zone [**1**] [**2A**] [**2B**] [**3**] [**4**].
			1. MOTORIZED PROJECTOR LIFTS
				1. Electrically Operated, Low Profile Lifts: Electrically operated, ceiling recessed projector lift for lowering and retracting projector for operation and storage. Assembly to include controls, mounting hardware, wiring, and other components required for complete operation.

(**Specifier Note**: Model specified depends on the maximum capacity of lift desired. SELECT AeroLift 35 for 35 lbs (15.9 kg), AeroLift 100 for 100 lbs (45 kg), or AeroLift 150 for 150 lbs (68 kg).)

Basis-of-Design Product: AeroLift [**35**] [**100**] [**150**].

Limit Switches: Provide factory set and field adjustable.

(**Specifier Note**: COORDINATE maximum extension with specified basis-of-design. SELECT 24.5 inches (622 cm) for AeroLift 35, or 38.5 inches (978 mm) for AeroLift 100 or AeroLift 150.)

Maximum Extension: [**24.5 inches (622 mm)**] [**38.5 inches (978 mm)]**.

(**Specifier Note**: COORDINATE maximum lift capacity with specified basis-of-design. SELECT 35 lbs (16 kg) for AeroLift 35, 100 lbs (45 kg) for AeroLift 100 or 150 lbs (68 kg) for AeroLift 150.)

Maximum Lift Capacity: [**35 lbs (16 kg)**] [100 **lbs (45 kg)**] [**150 lbs (68 kg)**].

(**Specifier Note**: COORDINATE travel speed with specified basis-of-design. SELECT 15 for AeroLift 35, 23 for AeroLift 100 or AeroLift 150.)

Approximate Travel Speed: [**15**] [**23**] seconds.

* + - * 1. Operating Mechanism: Operating pan raised and lowered by 110 VAC, 60 HZ, instantly reversible, thermally protected, lifetime lubricated, tubular 3-wire motor and cloth system with scissor arm for stability.

(**Specifier Note**: COORDINATE pan size with specified basis-of-design model. SELECT 22-1/4 by 14 inch (565 by 356 mm) for AeroLift 35, 28-1/4 by 15 inch (718 by 381 mm) for AeroLift 100 or 31-1/4 by 15-7/8 inch (794 by 403 mm) for AeroLift 150.)

* + - * 1. Operating Pan: [**20 by 12-1/2 inch (508 by 318 mm)**] [**28-1/4 by 15 inch (718 by 381 mm)**] [**31-1/4 by 15-7/8 inch (794 by 403 mm)**], steel pan with black powder coat paint finish for attachment of suspended projector.

(**Specifier Note**: SELECT one of three projector attachment options below.

Projector Attachment: [**Bolted to operating pan**] [**Mounted to operating pan with brackets provided by projector manufacturer**] [**Mounted to operating pan with universal projector mount**].

(**Specifier Note**: DELETE universal projector mount if not specified in projector attachment paragraph above.)

Universal Projector Mount: Universal bracket suitable for projectors up to 26 lbs (12 kg) with adjustable arms that can be manipulated to fit most projectors with three or four mounting holes. Tilt, yaw and pan adjustments can be made quickly using spring-loaded bolts.

Basis-of-Design Product: Universal Projector Mount as manufactured by Draper, Inc.

(**Specifier Note**: Optional ceiling closure panel is suspended below projector and is recessed to accept an acoustical ceiling panel or mounted flush with ceiling. SELECT desired option below or DELETE ceiling closure paragraph and sub-paragraphs below if not project specific.)

* + - * 1. Ceiling Closure Panel: Steel closure panel **[with] [without ceiling tile lip]**, suspended below projector from rods attached to operating pan. Closure [**mounted with recess to allow attachment of acoustical ceiling panels**] [**mounted flush with adjacent ceiling surface and finished with powder coat paint finish**].

Trim: Metal trim ring to finish ceiling opening.

Color: **[Black] [White]** powder coat.

 (**Specifier Note**: COORDINATE ceiling closure size with specified basis-of-design.)

Size: [**Small AeroLift 35 Closure, 15-5/8 by 25 inches (370 by 635 mm)**] [**Large AeroLift 35 Closure, 25 by 25 inches (635 by 635 mm)**] [**AeroLift 100 Closure, 30-3/4 by 30-3/4 inches (768 by 768 mm)**] [**AeroLift 150 Closure, 40-3/4 by 30-1/4 inches (1035 by 768 mm)**]

Trim: Metal trim ring to finish ceiling opening.

(**Specifier Note**: COORDINATE ceiling closure size with specified basis-of-design.)

Size: 14-9/16 by 11-9/16 inches (370 x 294 mm)

Color: **[Black] [White]** powder coat.

(**Specifier Note**: Optional environmental airspace housing isolates projector from environmental airspace above the ceiling. COORDINATE environmental airspace housing size with specified basis-of-design. DELETE paragraph below if not project specific.)

* + - * 1. Environmental Airspace Housing: Fabricated from aluminum and steel panels for recessing projector lift in ceiling space used as return air plenum. Provide with universal closure and metal trim to finish ceiling opening.

Size: **[Video Conferencing Camera Shelf and Closure Housing, 15-7/16 by 12-7/16 inches (392 x 316 mm)]** [**Small AeroLift 35 Housing, 14-9/16 by 23-7/8 inches (370 by 606 mm)**] [**Large AeroLift 35 Housing, 23-7/8 by 23-7/8 inches (606 by 606 mm)**] [**AeroLift 100 Housing, 29-3/8 by 30-1/4 inches (746 by 768 mm)**] [**AeroLift 150 Housing, 39-5/8 by 30-1/4 inches (1007 by 768 mm)**].

(**Specifier Note**: Optional ceiling access door in paragraph below provides access to projector and lift for cleaning, maintenance or repairs when unit is installed above a hard ceiling. DELETE paragraph if not project specific.)

* + - * 1. Ceiling Access Door: Provide 24 by 24 inch (610 by 610 mm) hinged ceiling access door [**with white finish**] [**recessed** **to accept ceiling tile**] installed to allow access to projector and mount installed above ceiling.
			1. CONTROLS
				1. Provide [**1**] [**2**] [**3**] [**4**] control stations to lower, raise, and stop projector lift.

(**Specifier Note**: SELECT one of two control paragraphs and corresponding sub-paragraphs below. DELETE paragraph that is not project specific.)

* + - * 1. Single Station Control: 3-position 110-120V maintained rocker switch with [**stainless steel cover plate and black rocker**] [**white switches**].

**OR**

(**Specifier Note**: Optional low voltage controls allow motorized projector lifts to be controlled from multiple locations using two or more low voltage switches. Low voltage controls can be provided with 3 button switches, or without switches as interface with a master control system, a radio frequency remote control receiver, or an infrared remote control receiver. SELECT desired options in paragraph below.)

* + - * 1. Low Voltage Station Control: Control station [**with 3 button switches for up, down and stop functions**] [**without switches for interface with** [**master control system**] [**radio frequency remote control receiver**] [**infrared remote control receiver**]]. Wiring from switches or receivers to low voltage control unit to be 24 V.

(**Specifier Note**: SELECT one of two portable, remote control hand held transmitter and receiver paragraphs below. Radio frequency and infrared remote control receivers need to be provided with and connected to a single low voltage control unit. COORDINATE paragraph with options in low voltage control paragraph above. DELETE paragraphs that are not project specific.)

Radio Frequency Remote Control: Hand held 3 button control for up, down, and stop functions and receiver unit to connect to low voltage control unit.

**OR**

Infrared Remote Control: Hand held 3 button control for up, down, and stop functions and receiver unit to connect to low voltage control unit. Unit compatible with learnable infrared master control systems.

(**Specifier Note**: Optional key operated power supply switches limit access to projector mount controls during specified time periods. COORDINATE options below with control paragraphs above.)

* + - * 1. Key Operated Power Supply Switch: Key operated switch to control [**low voltage**] [**110 V**] power to mount operating [**switch**] [**radio frequency remote control receiver**] [**infrared remote control receiver**]. Provide with [**2**] [**insert number**] keys.
1. EXECUTION

(**Specifier Note**: Motorized projector lifts can be mounted on ceiling surface or recessed into ceiling space. COORDINATE requirements with desired installation.)

* + - 1. PREPARATION
				1. Coordinate layout and installation of motorized projector lifts with ceiling construction and related components penetrating or above ceilings such as lighting fixtures, mechanical equipment, ductwork, and fire-suppression system.
				2. Coordinate requirements for blocking, structural supports, bracing, and ceiling openings to ensure proper installation of motorized projector lifts.
				3. Coordinate location and requirements for power supply conduit, and wiring required for motorized projector lifts and controls.
				4. Coordinate installation of recessed motorized projector lifts with construction of suspended [**acoustical panel ceilings specified in Section 09 51 13 Acoustical Panel Ceilings**] [**gypsum board** **ceilings specified in Section 09 29 00 Gypsum Board**].

(**Specifier Note**: DELETE coordination paragraph for acoustical ceiling panels adhered to closure panels if not project specific.)

* + - * 1. Coordinate required tolerances and weight restrictions for acoustical ceiling panels adhered to mount closure.

(**Specifier Note**: DELETE motorized screen coordination paragraph below if interface of controls for motorized projector lift and motorized screen are not project specific.)

* + - * 1. Coordinate interface and installation of motorized projector lift controls with provision of motorized screen.
			1. INSTALLATION
				1. Install motorized projector lifts and controls at locations and heights indicated on Drawings.
				2. Install motorized projector lifts complete with necessary hardware, anchors, brackets and fasteners; according to manufacturer's written instructions and as specified.
			2. FIELD QUALITY CONTROL
				1. Test motorized projector lifts to verify that lifts, controls, limit switches, closures, and other operating components are functional. Correct deficiencies.
			3. DEMONSTRATION
				1. Demonstrate operation of motorized projector lifts to Owner's designated representatives.
			4. PROTECTION
				1. Protect motorized projector lifts after installation from damage during construction operations. If damage occurs, remove and replace damaged components or entire unit as required to provide units in their original, undamaged condition.

END OF SECTION